Patent
Attorney Docket No. 4399

SPECIFICATION

BE IT KNOWN, that I, John B. Matthews, a citizen of the United States of America, residing at 123 Patricia Drive, Beaver Falls, PA 15010, have invented certain new and useful improvements in:

BASEMENT WATER DRAINAGE SYSTEM

of which the following is a specification.

BASEMENT WATER DRAINAGE SYSTEM

BACKGROUND OF THE INVENTION

The present invention relates to improvements in basement water drainage systems for receiving and channeling ground water from beneath the floor of basement rooms.

Ground water seeps into basements from the walls and from joints at the perimeter of the floor. The present invention relates to improvements in sub-floor drain conduit systems of the type disclosed in U.S. Patent No. 5,505,044. This patent discloses a sub-floor basement water control system which includes an elongate water receiving conduit designed to be installed at the wall and footing interface, beneath a peripheral area of the basement floor. The conduit is open to receive water admitted through bore holes in a concrete block wall and from the joint between the wall and the footing. The conduit also receives water which passes through openings on the inside surface of the wall, such as cracks, holes and the porosity of the masonry wall itself whereby the conduit can move the water to a drain location, such as a sump pump or floor drain, for discharge. In this prior art system, a generally rectangular conduit is provided having a flat horizontal bottom for supportive engagement with the upper surface of the wall footing. The conduit is provided with a plurality of spaced openings for admitting ground water into the conduit. The conduit is further provided with an integral upper vertical wall section that extends above the surface of the basement floor and contains standoffs or spacers for engagement with the basement wall to provide a narrow vertical drainage space between the basement wall and the upper vertical wall section of the conduit.

While this prior art system is effective it has shortcomings in that it is relatively expensive to manufacture and is not readily adjustable or adaptable to varying construction conditions. In addition, it does not prevent the occurrence of condensation on the peripheral edges of the cement floor.

It is therefore a principal object of the present invention to eliminate these disadvantages.

SUMMARY OF THE INVENTION

The drainage conduit system of the present invention provides a system for draining ground water from peripheral areas of interior basement or subterranean walls which are supported on a footing and further include a concrete floor having a peripheral edge supported on the footing. The system of the present invention is provided in two pieces. The first piece is a vertical wall portion for disposition between the wall and the floor. This vertical wall portion is provided with spacer protrusions on its rear surface for engagement with the wall whereby a narrow drainage passage is provided therebetween. This vertical wall portion is dimensioned such that it adequately extends above the floor.

The second piece of the drainage conduit system of the present invention is provided in the form of an independent horizontal elongate conduit portion for positioning adjacent to and along the previously described vertical wall portion. This elongate conduit portion is embedded

under the peripheral edge of the floor and is provided with apertures therealong for admitting ground water from the narrow drainage passage of vertical wall portion and from elsewhere. A layer of insulation is provided on the upper exterior surface of the conduit portion for disposition between the conduit portion and the floor whereby condensation is prevented from forming on the floor.

Since the conduit system of the present invention is provided in two pieces, it is more flexible than the system of the prior art. For example, the vertical wall portion may either rest directly on the wall footing or, instead, it may rest on top of the horizontal elongate conduit portion. When the vertical wall portion is installed resting on the footing, spaced apertures are provided along the bottom edge of this vertical wall portion for passing ground water to the adjacent horizontal conduit portion. These bottom apertures are not necessary in the installation situation wherein the vertical wall portion rests on top of the horizontal conduit portion.

The horizontal conduit portion is basically rectangular in cross section with the longer walls of the rectangle running horizontally and it is further provided with two diagonally opposed corners which are chamfered and provided with spaced apertures in the opposed chamfered corners. Spacers protrusions may be provided on one or more of the exterior vertical sides surfaces of the horizontal conduit portion to space it from the wall or from the separate vertical section to provide passage of ground water to the horizontal conduit portion.

A layer of insulation is provided on the upper exterior surface of the horizontal conduit portion and it is preferably adhered to the upper exterior surface of the conduit portion prior

to installation. The insulation prevents the formation of condensation on the floor perimeter which covers the drain, an also strengthens the conduit portion for resisting collapse.

Because the system of the present invention is made in two pieces, the system can accommodate different insulation problems encountered. For example, the vertical wall portion may be manufactured in different heights to accommodate different floor thicknesses. In addition, because the system is made in two pieces, the horizontal conduit portion need not be positioned directly adjacent the vertical wall portion, but rather may be spaced a small distance therefrom adjacent the footing. In this insulation gravel or other drainage material would generally be provided between the vertical wall portion and the horizontal drain portion to permit continued passage of the ground water from the vertical wall portion to the horizontal drain portion.

Also, being manufactured in two independent pieces, not only can the sizes of the vertical wall portion be varied, but the separate manufacture of the two pieces tends to provide a less expensive and less complicated extrusion than the integral system of the prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages appear hereinafter in the following description and claims. The drawings show, for the purpose of exemplification, without limiting the scope of the invention or appended claims, certain practical embodiments of the present invention wherein:

FIG. 1 is a perspective view of a section of a sub-floor two-piece water drainage control insulation in accordance with the teachings of the present invention;

FIG. 2 is an enlarged view in front elevation of the rear face of the vertical wall portion of the drainage system shown in FIG. 1;

FIG. 3 is an enlarged perspective view of a section of the horizontal drainage conduit portion shown in FIG. 1 according to another embodiment of the present invention; and

FIG. 4 is a perspective view of a section of the two-piece drainage system of the present invention illustrating yet another embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the two-piece ground water drainage conduit system 10 of the present invention is provided for an interior subterranean wall 11 supported on footing 12 and further having a concrete floor 13 with a peripheral edge 14 supported on the footing 12.

The two-piece conduit system of the present invention is comprised of a vertical wall portion 15 which extends horizontally and is disposed between the wall 11 and the floor 13. The rear surface 16 (see FIG. 2) of vertical wall portion 15 is provided with spacer protrusions 17 for engagement with the wall 11 whereby a narrow drainage passage is provided therebetween. The

height of vertical wall portion 15 is dimensioned such that it extends above the floor 13. In this embodiment, the vertical wall portion 15 rests directly on top of footing 12 and the bottom edge 19 of vertical wall portion 15 is provided with spaced apertures 19 for passing ground water.

The second piece of the drainage conduit system 10 of the present invention is comprised of an independent or separate horizontal elongate conduit portion 20 which, as seen in FIG. 1, may be positioned directly adjacent and along the vertical wall portion 15 under the peripheral edge 14 of cement floor 13. Horizontal conduit portion 20 need not necessarily be positioned directly adjacent vertical wall portion 15. For example, horizontal conduit portion 20 may be positioned along side footer 12 in the area where gravel 21 appears in FIG. 1. In this latter suggested embodiment, more gravel may be placed where conduit 20 is presently shown in FIG. 1, or another section of vertical wall portion 15 may be laid horizontally on top of footing 12 to permit passage of water from vertical wall portion 15 on over to horizontal conduit 20, which in this instance is positioned within the gravel bed 21.

Horizontal conduit portion 20 is provided with apertures 22 therealong for admitting ground water from the narrow drainage passage provided behind vertical wall portion 15 and elsewhere. Horizontal conduit portion 20 eventually leads to a drain (not shown). A layer of insulation 23 is adhered to the upper exterior surface 24 of conduit portion 20 for disposition between the conduit portion 20 and the floor 13 whereby condensation is thereby prevented from forming on the peripheral edges of 14 of floor 13.

As is best seen in FIG. 3, spacer protrusions 25 are provided on the wall side 26 of horizontal conduit portion 20 for engagement with the wall 11 whereby a narrow drainage passage is provided therebetween. These spacer protrusions 25 are particularly useful in the situation wherein the protrusions 25 directly engage the basement wall 11 and the vertical wall portion 15 rests directly on top of the horizontal conduit portion 20, instead of on top of the footer 12. This particular installation is illustrated in FIG. 4.

The horizontal conduit portion 20 is basically rectangular in cross section with the longer conduit walls 26 and 27 thereof running horizontally. The conduit 20 is provided with two diagonally opposed corners 28 and 29 which are chamfered as indicated with the spaced apertures 22 positioned in both of these chamfered corners.

In the particular embodiment of FIG. 3, the bottom right hand corner 30 is also chamfered. However, apertures 22 are not provided in this chamfered corner so that conveyance of ground water within the conduit portion 20 is more efficiently directed downstream in the direction of elongation of the conduit.

The vertical wall portion 15 and the horizontal conduit portion 20 are extended from a suitable resin such as polyvinyl chloride (PVC), polycarbonate, polyethylene terephthalate, nylon polyamides and similar compositions.